

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

690 Walnut Ave. St. 150

Vallejo, CA 94592-1133

(707) 649-5453

(707) 649-5493

Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-007450**Date Inspected:** 23-Jun-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Japan Steel Works**Location:** Muroran, Japan**CWI Name:** Chung Fu Kuan**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower, Jacking, and Deviation Saddles**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

**Machine Shop #4:**

Final Machining Operation in process on Saddle: Tower Saddle Segment T1-1

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed that the tower saddle segment was being re-positioned to start the machining operation at a different location.

**Fabrication Shop #4:**

Weld Operation in process on Saddle: Tower Saddle Segment T1-2

The QA Inspector observed the partial-joint penetration (PJP) weld operation on the middle stiffener plates welded to the rib plate (cast section) and trough (cast section) of tower saddle T1-2. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the PJP weld operation that the minimum preheat temperature of 110 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Ohkawa (03-3091) on plate no. 8ST-19, Mr. H. Mitsumori (81-5438) on plate no. 8ST-20, and Mr. R. Kito (81-5174) on plate no. 8ST-21 were in compliance with WPS SJ-3012-3 per the FCAW-G process in the (1G) flat position using (1.6) mm diameter TM55 electrode. The QA Inspector observed that the PJP weld operation was in process at the end of the QA Inspectors' shift.

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## Machine Shop #4

Milling Operation pending on Saddle: Tower Saddle Segment T1-3

The QA Inspector was informed by JSW representative Mr. Hideaki Kon that tower saddle segment T1-3 is located in Machine Shop #4 to have the accessible prepared edges of the groove area on the ribs and stems milled to the dimensional tolerances prior to the fit-up operation of the base plate. The QA Inspector observed that the milling / machining operation has not started on this date.

## Fabrication Shop #4

Storage of Saddle: West Deviation Saddle Segment W2-E1

The QA Inspector observed that west deviation saddle segment W2-E1 is located in Fabrication Shop #4. The QA Inspector observed that no other work was performed on west deviation saddle segment W2-E1 on this date.

NDT Operation in process on Saddle: West Deviation Saddle Segment W2-E2

The QA Inspector observed Nikko Inspection Services (NIS) QC NDT personnel Mr. H. Kohama (#86) performing the magnetic particle test (MPT) inspection (wet method) on west deviation saddle W2-E2 (cast section) on the final machined surfaces of level (1) areas as shown on the plans on the inside of the trough section and of level (3) areas as shown on the plans on the end rib sections of the west deviation saddle. The NIS QC NDT Inspector verified the lifting force of the yoke and the sensitivity of the yoke as per ASTM E709 prior to the start of the MPT inspection. The QA Inspector also verified that the bath concentration of the non-fluorescent particles were between (1.2 and 2.4) mL per (100) mL as per ASTM E709 Section 20.6.3 and the manufacturer recommendations. The actual settling volume was recorded at (2.2) mL as measured using a centrifuge tube with a (1.5) mL stem and after allowing the particles to settle for approximately (30) minutes prior to taking the settling volume measurement. The QA Inspector observed that the MPT inspection performed by Mr. H. Kohama was in process at the end of the QA Inspectors' shift.

## Machine Shop #2

Final Machining Operation pending on Saddle: West Deviation Saddle Segment W2-E3

The QA Inspector observed that west deviation saddle segment W2-E3 is located in Machine Shop #2. The JSW personnel completed the dimensional inspection and verified the locations of the ribs and stem against the approved drawings. Afterwards, the JSW personnel scribed the assembly control lines (ACL) on the edges of the ribs, stem and base plate for reference points during the machining operation. The QA Inspector observed that the final machining operation has not started on west deviation saddle segment W2-E3 on this date.

## Fabrication Shop #4

PWHT Operation completed on Saddle: West Deviation Saddle Segment W2-W1

The QA Inspector observed that the post weld heat treatment (PWHT) stress relief operation was completed on west deviation saddle W2-W1 on this date. The next operation on the west deviation saddle segment will be the blast cleaning operation.

Weld Operation in process on Saddle: West Deviation Saddle Segment W2-W2

The QA Inspector observed the partial-joint penetration (PJP) groove (fill pass) weld operation on the stem plate (steel section) to stem (cast section) of west deviation saddle segment W2-W2. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the PJP groove weld operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW

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welding personnel Mr. T. Watanabe (08-5153) on weld joint no. W2S-2U- (between plate 5-7 and 5-9), Mr. M. Matudate (08-5151) on weld joint no. W2S-2U- (between plate 5-9 and 5-11), and Mr. S. Watanabe (08-5159) on weld joint no. W2S-2U- (between plate 5-11 and 5-13) were in compliance with WPS SJ-3011-5 per the SMAW process in the (2G) horizontal position using (4.8) mm diameter E9018 electrode. The QA Inspector observed that the PJP groove (fill pass) weld operation was in process at the end of the QA Inspectors' shift.

PWHT Operation completed on Saddle: West Deviation Saddle Segment W2-W3

The QA Inspector observed that the intermediate post weld heat treatment (stress relief) operation was completed on west deviation saddle segment W2-W3 (steel section) on this date. The next operation on the west deviation saddle segment will be the blast cleaning operation.

Storage of Saddle: West Deviation Saddle Segment W2-W3

The QA Inspector observed that west deviation saddle segment W2-W3 (cast section) is located in Fabrication Shop #4. The QA Inspector observed that no other work was performed on west deviation saddle segment W2-W3 on this date.

Visual Inspection completed on bearing blocks and MC Shapes welded to Rocker Bearing Plate Assembly: East Saddle E2-W1

The QA Inspector observed that Nikko Inspection Services (NIS) Quality Control (QC) NDT Inspector Mr. K. Kobayashi (#141) completed the visual inspection of the fillet welds on bearing blocks and the miscellaneous channel (MC) shapes welded to the rocker bearing plate for east saddle E2-W1. The QA Inspector observed that no other work was performed on the rocker bearing plate assembly.

NDT Operation completed on End Splay Cover Plate Assemblies: East Saddle E2-E1 and East Saddle E2-W1

The QA Inspector observed that the fillet weld operation on the diaphragm plates welded in between the cover plate stiffeners on end splay cover plate assemblies for east saddles E2-E1 and E2-W1 have been completed. The next operation on the end splay cover plate assemblies is the post weld heat treatment operation. The QA Inspector observed that no other work was performed on the end splay cover plate assemblies for east saddles E2-E1 and E2-W1 on this date.

Foundry Shop:

Engineering Communication Sheet (ECS) completed on Cast Saddle: East Saddle E2-E1

The QA Inspector observed that Nikko Inspection Services (NIS) Quality Control (QC) NDT Inspector Mr. A. Seino (#82) completed the major and minor repair excavation maps on east saddle E2-E1. The JSW Representative Mr. Hideaki Kon informed the QA Inspector that NIS QC Inspection personnel also completed the engineering communication sheet (ECS) and JSW will submit the ECS on the major repairs only to American Bridge Fluor (ABF) for approval by the Caltrans Engineer prior to the start of the repair weld operation. The QA Inspector observed that no other work was performed on east saddle E2-E1 at the end of the QA Inspectors' shift.

Grinding Operation in process on Cast Saddle: East Saddle E2-W1

The QA Inspector observed the JSW personnel performing the grinding operation on the completed repair welds to grind smooth to the surface contour of the casting on east saddle E2-W1. The QA Inspector observed that the grinding operation was in process at the end of the QA Inspectors' shift.

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Shaping Operation in process on Saddle: West Jacking Saddle

The QA Inspector observed the JSW personnel performing the shaping (scarfing) operation- (removal of excess cast material on the rough casting) by the air-carbon arc gouge method using (19) mm diameter carbon electrode on the opposite side of the identification (ID) side on the trough, stem and rib sections of the west jacking saddle to profile the trough, stem, and rib sections of the west jacking saddle to the proper shape, dimension and radius. The QA Inspector observed that the JSW personnel were in process on the shaping operation at the end of the QA Inspectors' shift.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with the applicable contract specifications.

### Summary of Conversations:

No significant conversations were reported on this date.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, 510 385-5910, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Peterson, Art	Quality Assurance Inspector
<b>Reviewed By:</b>	Guest, Kittric	QA Reviewer

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